

AMENDMENTS TO THE CLAIMS

1. (Previously presented) A method for the preparation of halogenated benzonitriles which comprises reacting halogenated C₁ to C₆ alkyl benzenes by vapor phase ammoxidation, in the presence of water vapor, at a reaction temperature in the range of 300 to 500 °C, in the presence of a three-component catalyst into a fixed bed reactor wherein said catalyst consists of a promoted VPO active phase provided on a carrier.
2. (Previously presented) The method according to claim 1, wherein said reaction temperature is in the range of 350 to 450 °C.
3. (Previously presented) The method according to claim 1, wherein the residence time of the halogenated C₁ to C₆ alkyl benzene in said reactor is less than 10 seconds.
4. (Previously presented) The method according to claim 1, wherein said halogenated C₁ to C₆ alkyl benzene is di- or tri-halogenated C₁ to C₆ alkyl benzene.
5. (Previously presented) The method according to claim 4, wherein said di- or tri-halogenated C₁ to C₆ alkyl benzene is di-halogenated toluene.
6. (Previously presented) The method according to claim 5, wherein said di-halogenated toluene is 2,6-dichlorotoluene.
7. (Previously presented) The method according to claim 1, wherein said catalyst is provided on an Al₂O₃ carrier.
8. (Previously presented) The method according to claim 1, wherein said catalyst is provided on a TiO₂ carrier.
9. (Previously presented) The method according to claim 8, wherein said TiO₂ carrier consists of the anatase phase.
10. (Previously presented) The method according to claim 1, wherein said promoted VPO active phase provided on a carrier is a V₁P_aM_bAl_cO_x or V₁P_aM_bTi_cO_x catalyst wherein M is selected from the group consisting of Cr, Fe, Co and Mo; a is 0.1 - 2.0; b is 0.002 - 1.0; c is 2.0 - 10.0, and x is determined by the valences of other component elements.
11. (Previously presented) The method according to claim 10, wherein M is Co or Cr.

12. (Previously presented) The method according to claim 1, whereby the catalyst is diluted with an inert medium in the ratio of 0.5 to 2.0 by weight with respect to the weight of said catalyst prior to its addition to the reactor.

13. (Previously presented) The method according to claim 12 wherein said inert medium comprises corundum particles, porcelain beads, quartz beads, and glass beads.

14. (Previously presented) The method according to claim 1, comprising the step of supplying a halogenated alkane to said reactor.

15. (Withdrawn) A supported and promoted VPO catalyst, suitable for use in a method according to claim 1, obtainable by a process comprising the steps of:

- preparing a bulk VPO precursor;
- impregnating said bulk VPO precursor with a promoter element in order to obtain a bulk promoted VPO precursor; and
- adding a carrier to said bulk promoted VPO precursor,
- and calcining the resultant mixture under a weakly oxidising atmosphere of O_2/N_2 to obtain a supported and promoted VPO catalyst,

whereby said catalyst is a $V_1P_aM_bAl_cO_x$ or $V_1P_aM_bTi_cO_x$ catalyst wherein M is selected from the group consisting of Cr, Fe, Co and Mo; a is 0.1 - 2.0; b is 0.002 - 1.0; c is 2.0 - 10.0, and x is determined by the valences of other component elements, characterized in that the catalyst contains mainly two phases under working conditions a $(VO)_2P_2O_7$ phase and a $(NH_4)_2(VO)_3(P_2O_7)_2$ phase.

16. (Withdrawn) The catalyst according to claim 15, wherein said carrier is an Al_2O_3 carrier.

17. (Withdrawn) The catalyst according to claim 15, wherein said carrier is a TiO_2 carrier.

18. (Withdrawn) The catalyst according to claim 17, wherein said TiO_2 carrier consists of the anatase phase.

19. (Withdrawn) A method for the preparation of a catalyst according to claim 15 comprising the steps of:

- preparing a bulk VPO precursor;
- impregnating said bulk VPO precursor with a promoter element in order to obtain a bulk promoted VPO precursor; and
- adding a carrier to said bulk promoted VPO precursor,

- and calcining the resultant mixture under a weakly oxidising atmosphere of O_2/N_2 to obtain a supported and promoted VPO catalyst.
20. (Withdrawn) The method according to claim 19 comprising the steps of:
- refluxing of a vanadium source in the presence of alcohols to obtain a solution containing reduced vanadium species;
 - adding of a phosphorus source and refluxing said solution in order to obtain a bulk VPO precursor;
 - impregnation of said bulk VPO precursor with an alcoholic or aqueous solution of a promoter element to obtain a bulk promoted VPO precursor;
 - mixing said bulk promoted VPO precursor with $\gamma-Al_2O_3$ or TiO_2 carrier powder; and shaping and calcining the resultant mixture to obtain a supported and promoted VPO catalyst.
21. (Withdrawn) The method according to claim 19, wherein said vanadium source is V_2O_5 and said phosphorous source is $o-H_3PO_4$.
22. (Withdrawn) The method according to claim 19, wherein said promoter element comprises Cr, Fe, Co or Mo.
23. (Withdrawn) The method according to claim 19, wherein the ratio of said bulk promoted VPO precursor over said $\gamma-Al_2O_3$ or TiO_2 carrier powder is in the range of 1:2 to 1:10.
24. (Withdrawn) The method according to claim 19, wherein the calcining step is performed at a temperature in the range of 300 to 900°C for a period of 1 to 10 hours, under a calcining atmosphere.
25. (Withdrawn) A method according to claim 19, wherein the calcining step is performed at a temperature in the range of 350 to 700°C for a period of 2 to 6 hours, under a calcining atmosphere of weak oxidising strength.
- 26-29. (Cancelled)
30. (Withdrawn) The method according to claim 3, wherein the residence time of the halogenated C_1 to C_6 alkyl benzene in said reactor is less than 8 seconds.
31. (Withdrawn) The method according to claim 23, wherein the ratio of said bulk promoted VPO precursor over said $\gamma-Al_2O_3$ or TiO_2 carrier powder is in the range of about 1:6.

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32. (New) The method according to claim 1, wherein about 7 to 40 moles of water per mole of C₁ to C₆ alkyl benzene are provided.